

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

1. (Currently Amended) A vibrating reed comprising:

a base;

a vibration arm section formed so as to protrude from ~~the said~~ base[;], the vibration arm section having a grooved portion formed in one of an obverse surface and a rear surface of said vibration arm section; and, a side portion spaced apart from said grooved portion, and a connecting surface extending from said side portion to said grooved portion; and

a groove electrode portion and a side electrode portion formed ~~in on the said~~ grooved portion and the said side portion of the said vibration arm section, respectively[;], at least part of one of said groove electrode portion and said side electrode portion extending partially over said connecting surface of said side portion;

wherein a short-circuit prevention section is formed ~~between the said~~ groove electrode portion and the said side electrode portion at said connecting surface.

2. (Original) A vibrating reed according to Claim 1, wherein said groove electrode portion and said side electrode portion further comprise excitation electrodes.

3. (Currently Amended) A vibrating reed according to Claim 1, wherein said short-circuit prevention section further comprises an insulation film extending over at least one of said groove electrode portion and said side electrode portion at said upper surface of said side portion.

4. (Original) A vibrating reed according to Claim 3, wherein said insulation film further comprises an etched insulating film.

5. (Original) A vibrating reed according to Claim 1, wherein a cut section is formed in said base.

6. (Original) A vibrating reed according to Claim 5, wherein said base is provided with a fixation area for fixing the vibrating reed, and said cut section is provided in the base between the fixation area and said vibration arm section.

7. (Original) A vibrating reed according to Claim 1, wherein said vibrating reed further comprises a tuning-fork-type vibrating reed formed from a crystal which oscillates between approximately 30 kHz and approximately 40 kHz.

8. (Currently Amended) A vibrator having a vibrating reed housed in a package, said vibrating reed comprising:

a base;

a vibration arm section formed so as to protrude from ~~the~~ said base[;], the vibration arm section having a grooved portion formed in one of an obverse surface and a rear surface of said vibration arm section[;] ~~and~~, a side portion extending apart from said grooved portion, and a connecting surface extending from said side portion to said grooved portion; and

a groove electrode portion and a side electrode portion being formed ~~in~~ on ~~the~~ said grooved portion and ~~the~~ said side portion of ~~the~~ said vibration arm section, respectively[;], at least part of one of said groove electrode portion and said side electrode portion extending partially over said connecting surface of said side portion;

wherein a short-circuit prevention section is formed between said groove electrode portion and said side electrode portion of said vibrating reed at said connecting surface.

9. (Original) A vibrator according to Claim 8, wherein said groove electrode portion and said side electrode portion of said vibrating reed are excitation electrodes.

10. (Original) A vibrator according to Claim 8, wherein said short-circuit prevention section of said vibrating reed further comprises an insulation film.

11. (Original) A vibrator according to Claim 10, wherein said insulation film of said vibrating reed further comprises an etched insulation film.

12. (Original) A vibrator according to Claim 8, wherein a cut section is formed in said base of said vibrating reed.

13. (Original) A vibrator according to Claim 12, wherein a fixation area for fixing the vibrating reed is provided in said cut section of said vibrating reed, and said cut section is provided in the base between the fixation area and said vibration arm section.

14. (Original) A vibrator according to Claim 8, wherein said vibrating reed is formed by a crystal which oscillates between approximately 30 kHz and approximately 40 kHz and comprises a tuning-fork-type vibrating reed.

15. (Original) A vibrator according to Claim 8, wherein said package is formed in a box shape.

16. (Original) A vibrator according to Claim 8, wherein said package is formed in a cylinder shape.

17. (Currently Amended) An oscillator having a vibrating reed and an integrated circuit housed in a package, said vibrating reed comprising:

a base;

a vibration arm section formed so as to protrude from ~~the~~said base[;], the vibration arm section having a grooved portion formed in one of an obverse surface and a rear surface of said vibration arm section[;] ~~and, a side portion spaced apart from said grooved portion, and a connecting surface extending from said side portion to said grooved portion; and~~

a groove electrode portion and a side electrode portion being formed ~~in~~on ~~the~~said grooved portion and ~~the~~said side portion of ~~the~~said vibration arm section, respectively[;], at least part of one of said groove electrode portion and said side electrode portion extending partially over said connecting surface of said side portion;

wherein a short-circuit prevention section is formed between said groove electrode portion and said side electrode portion of said vibrating reed at said connecting surface.

18. (Currently Amended) An electronic device using a vibrator which is connected to a control section, said vibrator having a vibrating reed housed in a package, said vibrating reed comprising:

a base;

a vibration arm section formed so as to protrude from ~~the~~said base[;], the vibration arm section having a grooved portion formed in one of an obverse surface and a rear surface of said vibration arm section[;] ~~and, a side portion spaced apart from said grooved portion, and a connecting surface extending from said side portion to said~~

grooved portion; and

a groove electrode portion and a side electrode portion formed ~~in on~~ the said grooved portion and ~~the~~ said side portion of ~~the~~ said vibration arm section, respectively[;], at least part of one of said groove electrode portion and said side electrode portion extending partially over said connecting surface of said side portion;

wherein a short-circuit prevention section is formed between said groove electrode portion and said side electrode portion of said vibrating reed at said connecting surface.

19. (Currently Amended) A method of manufacturing a vibrating reed including a base, a vibration arm section formed so as to protrude from the base, a grooved portion formed in one of an obverse surface and a rear surface of said vibration arm section, and a groove electrode portion and a side electrode portion formed in the grooved portion and ~~the~~ a side portion of the vibration arm section, respectively, said method comprising:

a step of forming a short-circuit prevention section on a connecting surface extending from the side portion to the grooved portion between the groove electrode portion and the side electrode portion,

a step of forming at least part of one of the groove electrode portion and side electrode portion over said connecting surface;

the step including at least a step of forming an insulation film in said vibration arm section so that the insulation film formed in said side portion and said grooved portion is thinner in film thickness than the insulation film formed on the obverse surface of said vibration arm section, and

a step of removing said insulation film formed in said side portion and said grooved portion.